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First records of the genus *Neotama* Baehr & Baehr (Araneae: Hersiliidae) from the Afrotropical Region

by

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ABSTRACT

Hersilia corticola Lawrence is transferred to *Neotama* Baehr & Baehr and the male is described for the first time. This represents the first record of this genus from the Afrotropical Region.

KEY WORDS: Afrotropical Region, Araneae, Hersiliidae, *Neotama.*

INTRODUCTION

The family Hersiliidae is known for the peculiarly long legs and spinnerets of its members. The legs of some genera have been modified to accommodate this elongation and presumably add to the speed at which these spiders move. These adaptations vary from flexibilities in the distal third of the metatarsi, to complete biarticulation of those segments. Until recently, arboreal hersiliids with flexible zones on their metatarsi, were known only from Australia (Baehr & Baehr 1987), the Oriental Region (Baehr & Baehr 1993), and the Neotropics (Reihms & Brescovit 2004). The biarticulate condition could be considered derived, and is restricted to the Afrotropical (Benoit 1967) and Oriental Regions. This study records the first arboreal hersiliids with narrow flexible zones on their metatarsi from the Afrotropical Region.

Neotama Baehr & Baehr is a small genus of very long-legged spiders of the family Hersiliidae, with four species recorded from India, Sri Lanka, Java and Sumatra (Platnick 2004). Rheims and Brescovit (2004) have described four additional species from the Neotropical Region. The genus is distinguished by the narrow flexible zone in the distal third of metatarsi I, II and III; a basal loop in the sperm duct of the male palp (Rheims & Brescovit 2004); and an epigyne with a slit-like lateral opening between the median plate and lateral borders (Baehr & Baehr 1993).

Members of *Neotama* are arboreal forest dwellers. Very little is known about their natural history except that the Afrotropical representative of this genus was collected in the south-eastern coastal forests of South Africa. Baehr (1998) used members of the genus to polarise characters in the genus *Hersilia* Audouin. Their approach was supported by a phylogeny proposed by Rheims and Brescovit (2004) which suggests that *Neotama* is the sister taxon of *Hersilia*.

This study reports on the first records of *Neotama* from the Afrotropical Region based on the transfer of *Hersilia corticola* Lawrence to *Neotama*. This is a considerable

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expansion of the known distribution of *Neotama*, and makes it the most widely distributed hersiliid genus. The male of *N. corticola* is also described for the first time. This paper forms part of a series on the Hersiliidae of the Afrotropical Region (Foord & Dippenaar-Schoeman 2005).

MATERIALS AND METHODS

The area covered by this study is the Afrotropical Region, including the following islands in both the Indian and Atlantic oceans: St Helena, Comoros, Madagascar, Seychelles, Zanzibar and Cape Verde. Terminology follows Baehr and Baehr (1993) and Rheims and Brescovit (2004) in part.

The epigyne of the female and the left palp of the male (where available, otherwise the right) were removed and mounted temporarily on slides in Heinze's modified PVA mounting medium (Meyer & Rodrigues 1966).

The following abbreviations are used in this paper:

ALE – anterior lateral eye
AME – anterior median eye
bS – basal segment of posterior lateral spinneret
CI – carapace index
CL – carapace length
CLL – clypeus length
CW – carapace width
el – epigyne length
ew – epigyne width
Fe – femur
MOQ – median ocular quadrangle
MOQ-AW – MOQ anterior width
MOQ-PW – MOQ posterior width
Mt – metatarsus
OAL – ocular area length
Pat – patella
PER – posterior eye row
PLE – posterior lateral eyes
PME – posterior median eyes
Ta – tarsus
Tib – tibia
TL – total length
tS – terminal segment of posterior lateral spinneret

Measurements were made under a stereomicroscope using an ocular micrometer with up to 50 × magnification. All measurements are given in millimetres with the observed ranges in parentheses.

The following measurements were taken.

Carapace: CI – derived by dividing the length of carapace by its width; CL – measured from clypeal edge to posterior edge; CW – measured over widest part of the carapace; CLL – measured from outer edge of AME to anterior edge of clypeus.

Size of eyes is given as relative to AME in the following order: AME: ALE: PME: PLE.

Legs – length of leg (each segment from the femur to tarsus was measured and the sum of the measurements given as the leg length).

Length ratio of legs is relative to leg I.

Abdomen: length (measured from anterior edge to posterior edge of abdomen) and width (measured over widest part of abdomen); spinneret length.

Epigyne: length and width.

Illustrations: The left palp of males was drawn. Drawings of the carapace include a lateral view and an anterior view. The abdomen of the female was drawn. Drawings of epigyne include a ventral and dorsal view.

Material was received on loan from the following institutions: NM – Natal Museum, Pietermaritzburg, South Africa; NMBA – National Museum, Bloemfontein, South Africa; TMP – Transvaal Museum, Pretoria, South Africa.

TAXONOMY

Neotama Baehr & Baehr, 1993

Tama: Simon 1882: 255 (in part).
Neotama: Baehr & Baehr 1993: 68; Rheims & Brescovit 2004: 189.

Type species: *Tama variata* Pocock, 1899.

Diagnosis: Clypeus very short, as long as ocular area length, eye tubercle depressed; very long legs, metatarsi I, II, and IV with narrow flexible zone in distal third; male palp with tibia not much longer than patella, cymbium digiform, bulbus round; sperm duct with basal loop; embolus curved, filiform; epigyne externally with two lateral slit-like to oval openings, copulatory duct wide, spermathecae cylindrical, seminal receptacle simple, round with stalk; fertilisation duct short, simple.

Description:

Female

Size: Medium, range (6.32–7.13).

Colour: Carapace pale yellow with isolated dark and white markings laterally; clypeus pale yellow, white anteriorly; eye area dark around AME eyes and PER; white mark posteriad on eye tubercle; abdomen white with dark anterolateral borders; dorsum with lancet-shaped heart mark; V-shaped marking posteriad on dorsum (Fig. 5); posterior lateral spinnerets with no or faint annulation; legs pale yellow with patellae dark brown; femora and palps with faint annulation.

Carapace: As long as wide; thoracic region widest; cephalic region narrow; dorsoventrally flattened (Fig. 3); fovea longitudinal with radial striae; clypeus very short, not projecting beyond eye area, varying in length between 0.36 and 0.59 × median ocular quadrangle length; eye area very depressed (Fig. 3); ALE smallest, white; AME largest; chelicerae stout, retromargin with one row of minute teeth, promargin with three large teeth. Sternum heart-shaped; labium triangular, 0.63 × endite length; endites elongate, rectangular.

Abdomen: Wider than long, widest in posterior third; dorsoventrally flattened; four pairs of distinct dorsal muscular pits varying in size, second pair largest, oval; venter with V-shaped muscular pits; posterior lateral spinnerets very long, >2 × carapace width; terminal segment >4 × basal segment.

Legs: Either leg I or II longest; leg I > 3 × total body length; leg formula I:II:IV:III; leg III very short, < 0.3 × length of leg I; metatarsus I > 8 × longer than tarsus I; distal segment of metatarsus < 0.5 × length of proximal segment. Femur, patella, and metatarsus with spines; spines short, < 0.5 × diameter of legs, spine formula: I- Fe 1p1r1d-1p1r1d-1p1r1d, Pat 1d, Tib 1d-1p-1r-1d-1r-1p, Mt 1p1r; II- Fe 1p1r1d-1p1r1d-1p1r-1d, Pat, Tib 1d-1p1r-1d-1p1r-1d, Mt 1p1r; III- Fe 1d-1d, Pat 1d, Tib 1d-1d, Mt 1r1p1v-1d; IV-

Fe 1d-1d-1d-1d, Pat 1d, Tib 1d-1d-1r-1d, Mt 1p1r; spine microstructure with irregular patterns of lancet-shaped scales; paired tarsal claws with nine teeth.

Male

Size: Small (4.83–5). Resembles female in shape and colour; male differs structurally as follows: smaller in size; abdomen more slender, legs much longer in relation to body length; leg I much longer than other legs.

Palps: Tibia as long as patella; cymbium digiform; bulbus round, sperm duct with basal loop; embolus filiform, regularly curved, apex acute.

Remarks: Species of *Neotama* differ from those of *Tama* Simon in their arboreal life style, much longer legs, leg I and II always longer than leg IV, a narrow flexible zone in the distal third of leg I, II and IV, dorsoventrally flattened carapace and abdomen, and very short clypeus.

Composition: *Neotama variata* (Pocock, 1899) – Sri Lanka; *N. corticola* (Lawrence, 1937) comb. n. – South Africa; *N. longimana* Baehr & Baehr, 1993 – Sumatra; *N. rothorum* Baehr & Baehr, 1993 – India; *N. punctigera* Baehr & Baehr, 1993 – India; *N. mexicana* (O.P.-Cambridge, 1893) – Mexico; *N. forcipata* (F.O.P.-Cambridge, 1902); *N. obatala* Rheims & Brescovit, 2004) – Brazil; *N. cunhabebe* Rheims & Brescovit, 2004 – Brazil.

Distribution: Nearctic, Neotropical, Afrotropical and Oriental Regions.

Phylogenetics: The slit-like, oval, lateral openings between the lateral borders and median plate of the epigynum support the monophyly of the genus *Neotama*. The presence of a narrow flexible zone on metatarsi I, II, and IV and a basal loop in the sperm duct of the palp are homoplasious characters that also support the monophyly of the genus.

Neotama corticola (Lawrence, 1937) **comb. n.**

Figs 1–8

Hersilia corticola Lawrence, 1937: 226; 1938: 481; Smithers 1945: 5, 8; Benoit 1967: 15.

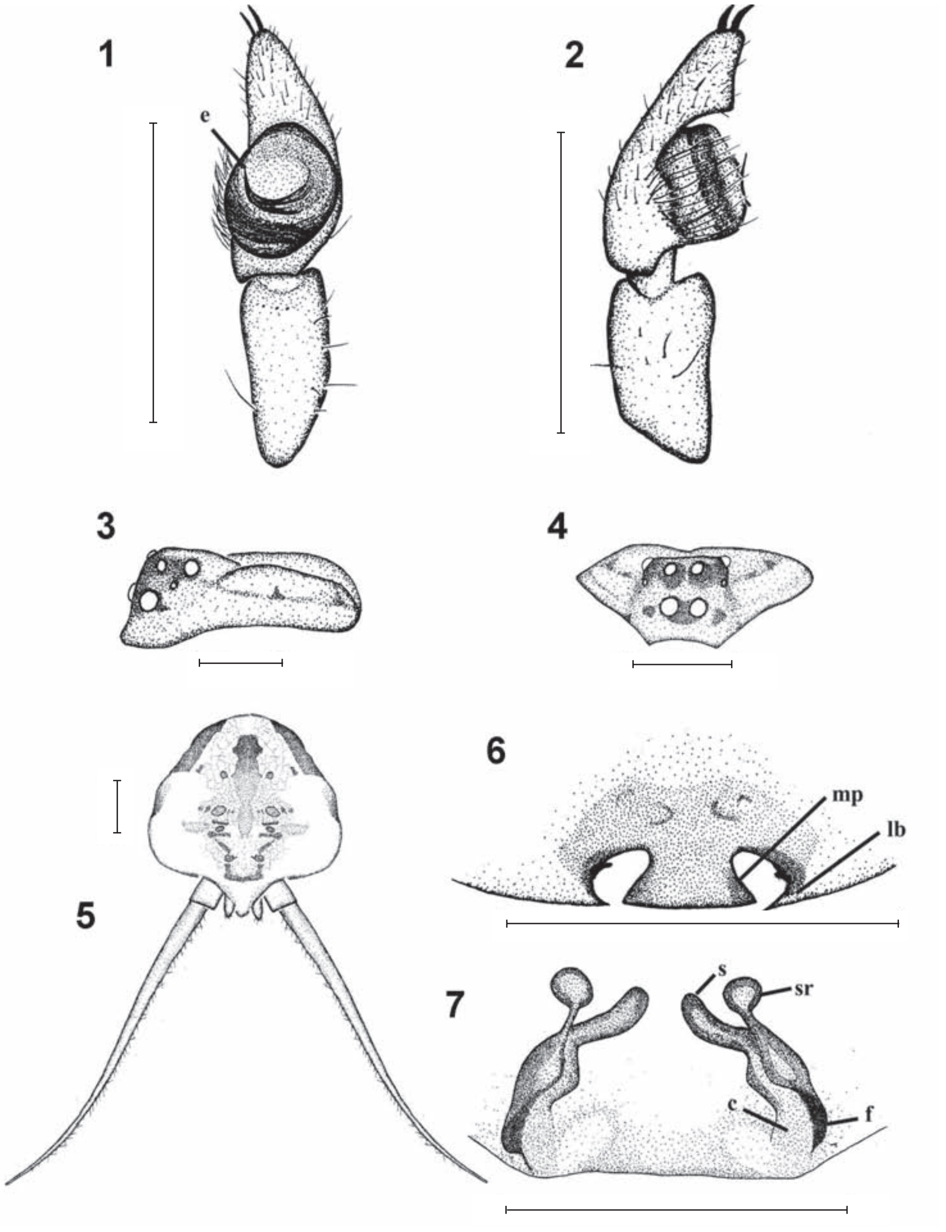
Diagnosis: Small to medium-sized spiders; very long legs; eye tubercle depressed; clypeus short; narrow flexible zone on metatarsi I, II, and IV; male palp with bulbus without any apophysis; embolus short, stout, curved (Figs 1, 2); epigyne with spiniform lateral borders, median plate narrowed anteriorly (Fig. 6); copulatory duct wide; spermathecae cylindrical, seminal receptacle simple, round with stalk; fertilisation ducts short, simple (Fig. 6).

Description:

Female

Size (n = 4). TL 6.67 (6.32–7.13); CL 2.28 (1.76–2.63); CW 2.36 (2–2.7); OAL 0.2 (0.16–0.23); CLL 0.29 (0.2–0.4). AME diameter 0.23; AME-AME 0.21; AME-ALE 0.2; ALE diameter: 0.078; MOQ-AW 0.64; PME-PME 0.22; PME diameter 0.17; PME-PLE 0.23; MOQ-PW 0.55; PLE diameter: 0.15.

Colour: Carapace pale yellow to pale brown, with brown and white spots laterally; clypeus pale, white anteriorly; eye area dark around AME eyes and PER; white mark posteriad on eye tubercle; abdomen white with dark borders anteriorly; dorsally with lancet-shaped heart mark; posterior half of abdomen V-shaped, dark border around



Figs 1–7. *Neotama corticola* (Lawrence, 1937) comb. n.: (1) left palp ventral view, (2) left palp prolateral view, (3) carapace lateral view, (4) carapace anterior view, (5) female abdomen dorsal view with spinnerets, (6) epigyne ventral view, (7) epigyne dorsal view. Abbreviations: c – copulatory duct, e – embolus, f – fertilisation duct, lb – lateral borders, mp – median plate, s – spermatheace, sr – seminal receptacle. Scale bars = 0.5 mm.

dorsal muscular pits, ventrum mottled white; posterior lateral spinnerets with no or faint annulation; legs pale yellow with dark brown patellae; femora and palps with faint annulation.

Carapace: As long as wide (CI 0.97); clypeus very short, 0.48 × median ocular quadrangle length, sloping; eye tubercle depressed; AME largest; eye ratio 1:0.47: 0.77: 0.72; MOQ-AW > MOQ-PW; chelicerae stout, 1.71 × longer than wide; one row of six minute teeth on retromargin.

Abdomen (Fig. 5): Length 3.03, width 4.2, wider than long, widest in posterior third; four pairs of dorsal muscular pits, second pair large, oval; posterior lateral spinnerets 1.64 × length of abdomen; 2.82 × CW; tS 4.25 × bS.

Legs: Leg I longest, 3.23 × total body length; leg ratio 1:0.99:0.28:0.87; metatarsus I 8.29 × longer than tarus I; distal part of metatarsus 0.49 × proximal part; leg measurements: I- Fe 6.49, Pat + Tib 7.18, Mt I 8.93, Ta 0.98, total 21.8; II-6.01, 6.81, 8.09, 0.98, total 21.07; III-2.06, 2.06, 1.66, 0.64, total 5.95; IV-5.47, 5.74, 7.8, 0.86, total 19.16; Palp-1.13, 1.13, 0.94, total 3.38.

Epigyne (Figs 6, 7): Wide (el/ew 0.58); spiniform lateral borders; median plate broad, narrows anteriorly; copulatory openings widely spaced; spermathecae cylindrical; seminal receptacle simple, round, stalked; fertilisation duct short, simple (Fig. 7).

Male

Size (n = 3). TL 4.92 (4.83–5); CL 2.25 (2.16–2.33); CW 2.02 (1.88–2.16); OAL 0.56 (0.56–0.57); CLL 0.21 (0.19–0.22). AME diameter 0.22; AME-AME 0.12; AME-ALE 0.13; MOQ-AW 0.57; ALE diameter 0.09; PME-PME 0.19; PME diameter 0.13; PME-PLE 0.19; MOQ-PW: 0.44; PLE diameter 0.14.

Closely resembles females except: smaller; legs longer, 1.2–1.7 × longer; leg I very long, patellae dark; leg measurements: I- Fe 9.39, Pat + Tib 11.82, Mt I 18.68, Ta 1.12, total 37.22; II-7.5, 8.98, 10.88, 0.71, total 28.58; III-2.46, 2.44, 2.1, 0.6, total 7.25; IV-6.75, 7.25, 11.07, 0.75, total 25.05; Palp-1.12, 0.77, 0.7, total 2.59.

Palps (Figs1, 2): Tibia elongate, 1.5 × longer than wide; cymbium digiform, twice as long as wide, three apical spines; row of long white setae on prolateral border of cymbium arching over bulbus; bulbus round; sperm duct with basal loop; embolus circular, stout, apex acute; median apophysis absent.

Type material examined: ♀ holotype, SOUTH AFRICA: *KwaZulu-Natal*: Durban, Bluff (29°53'S:31°01'E), xi.1936, R.F. Lawrence, NMSA 74; paratype: 1 ♀, same data.

Additional material examined: SOUTH AFRICA: *KwaZulu-Natal*: Umzinto, Vernon Crookes Nature Reserve (30°16'S:30°37'E), 3 ♂, 5.i.1992, L.N. Lotz, NMBA 5957; Hluhluwe Game Reserve (28°09'S:32°10'E), 2 ♀, x.1935, R.F. Lawrence, NM 1149; Port Edward (31°03'S:30°13'E), 1 ♀, xi.1943, R.F. Lawrence, NM 4168; Ngome State Forest (27°52'S:31°24'E), 2 ♀, Northern KwaZulu-Natal, 1.ii.1988, L. Prendini, TMP 181653; 'Cascade' farm (H. Lee) 10 km W Eshowe (28°53'S:31°28'E), Ngotsche (Ntumeni) forest, 600 m a.s.l., 2 ♀, 1 juv., 17–18.i.1984, C.E. Griswold, P. Croeser, R. Lee, P. Reavell (NMSA); *Eastern Cape Province*: Kudu Reserve (Fort Brown) near Grahamstown (33°07'S:26°37'E), 1 ♂, 629 m a.s.l., on trunk of *Combretum caffrum*, 14.xii.1981, E. Nieman, J. Hoffman, NMSA; *Western Cape Province*: Knysna, Diepwalle Forest Station, 22 km NE Knysna (33°57'S:23°10'E), 600 m a.s.l., indigenous forest, 1 ♀, 1 juv., 11–13.xi.1985, C.E. Griswold, J. Doyen, T.M. Griswold, NMSA.

Distribution: South Africa (forested areas of KwaZulu-Natal, Eastern and Western Cape) (Fig. 8).

Natural history: Arboreal spiders found mainly on tree trunks in forests. Adult females were collected during October and November, adult males in January and July; arboreal, caught in forest on tree trunks.

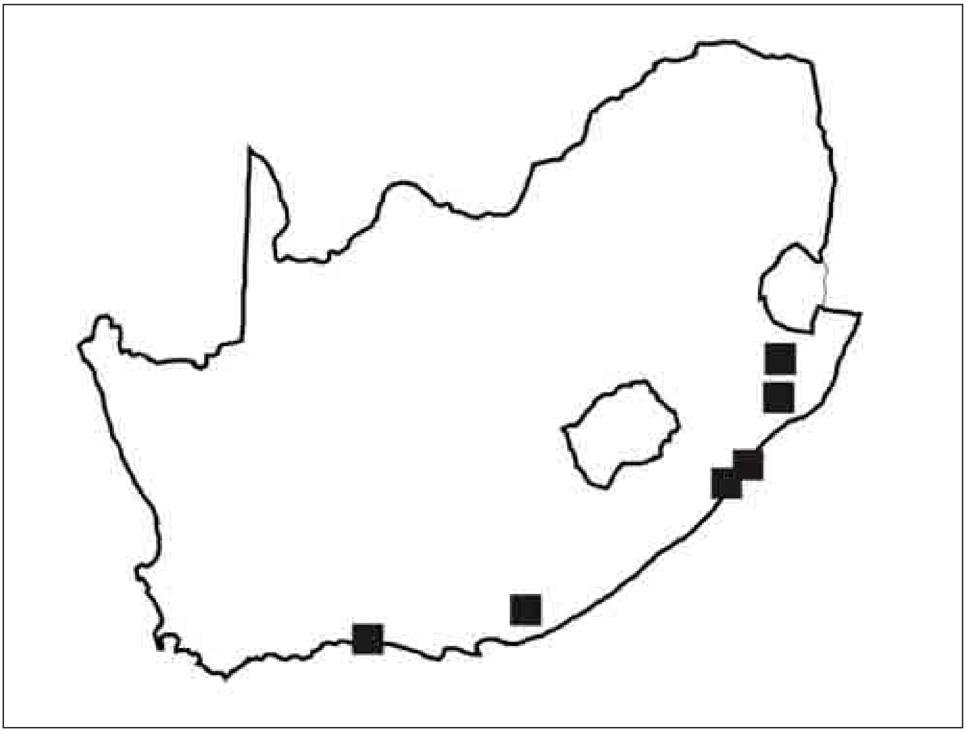


Fig. 8. Distribution map for *Neotama corticola* (Lawrence, 1937) comb. n.

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